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July 24, 2001

Arizona Corporation Commission
DOCKETED

JUL 2 5 2001

DOCKETED BY

Docket Control
Arizona Corporation Commission
200 West Washington
Phoenix, AZ 85007

Re: ACC Docket No. T-00000A-00-0194

Dear Docket Control:

Enclosed please find for filing the original and ten (10) copies of the non-proprietary version of the ***Summary Testimony of Douglas Denney***, on behalf of AT&T Communications of the Mountain States, Inc., WorldCom, Inc., and XO Arizona, Inc. in the above-referenced matter. A proprietary version of this summary is being provided to Hearing Division and those parties who are signatories to the Protective Agreement in this matter. If you have any questions, please contact me at the phone number, or e-mail address, above.

Very truly yours,

Davis Wright Tremaine LLP

Larry J. Weathers
Paralegal

Enclosures

cc: Mary Steele
       Rick Wolters

BEFORE THE ARIZONA CORPORATION COMMISSION

WILLIAM A. MUNDELL
    Chairman
JAMES M. IRVIN
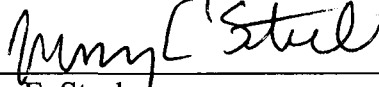   Commissioner
MARC SPITZER
    Commissioner

IN THE MATTER OF INVESTIGATION)	DOCKET NO. T-00000A-00-0194
INTO U S WEST COMMUNICATIONS,)	
INC.'S COMPLIANCE WITH CERTAIN)	NOTICE OF FILING
WHOLESALE PRICING REQUIREMENTS)	SUMMARY TESTIMONY OF
FOR UNBUNDLED NETWORK)	DOUGLAS DENNEY
ELEMENTS AND RESALE DISCOUNTS)	
)	

AT&T Communications of the Mountain States, Inc., WorldCom, Inc., and XO

Arizona, Inc., hereby provides Notice of Filing the Non-Proprietary Version of the

Summary Testimony of Douglas Denney. The Proprietary Version of the Summary

Testimony of Douglas Denney will be provided to the Hearing Officers in accordance

with the Procedural Order in this matter.

DATED this 24th day of July, 2001.

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Summary of Douglas Denney
AT&T/WorldCom/XO
Docket No. T-00000A-00-0194, Phase II

Non-Proprietary Version

Overview

Unbundled Network Element ("UNE") prices that most closely reflect their underlying cost will best facilitate efficient competition by sending the appropriate signals to the marketplace and allow competitors to make economically efficient decisions on where and how to compete. Thus, in order to facilitate efficient competition, it is imperative that this Commission establishes appropriate UNE prices. The best tool available to the Commission to do this is the HAI Model.

The HAI Model has many advantages over Qwest's LoopMod. The HAI Model is non-proprietary. Any party in the state can run the model without signing special protective agreements. The inputs to the model are non-proprietary and well documented. The HAI Model is easy to run and its inputs easily adjusted for the purpose of running sensitivities or updating input values.

The HAI Model

The HAI Model, version 5.2a is a Total Long Run Incremental Cost ("TELRIC") cost model that can be used to estimate the Arizona specific unbundled network element costs associated with the loop, local switching, interoffice transport, interoffice signaling, and the total unbundled network element platform. The model is open, flexible, specific to Arizona, and incorporates multiple years of development and review.

Where has the HAI/Hatfield Model been used?
The table below lists the cost model used by each state in Qwest's region.

State	Model Used to Determine Cost
Arizona	HM 2.2.2
Colorado	Blended HM 2.2.2 and RLCAP
Idaho	HM 2.2.2
Iowa	HM 3.1
Minnesota	HM 5.0a
Montana	HM 2.2.2
Nebraska	HM 2.2.2
New Mexico	Blended HM 2.2.2 and RLCAP
North Dakota	HM 2.2.2
Oregon	RLCAP
South Dakota	RLCAP
Utah	Blended HM 5.0a and RLCAP
Washington	Blended HM 3.1, BCPM and RLCAP
Wyoming	RLCAP

RLCAP refers to any numerous previous versions of the current LoopMod, which is now part of Qwest's ICM.

How Does it work?

Customers are located by geocoding known customer locations. To the extent that geocoding information is not available, customer locations are surrogated by placing customers uniformly along livable roads in the census block where that customer is located.

Cluster Customers (group customer locations into natural groups)
There are over 2800 unique clusters for Qwest in Arizona. These represent groupings of customers that can be served most efficiently together in one distribution area.

Clusters are input to the model with the following information:

Location of cluster; size of cluster, mix of lines in cluster, types of structures within cluster, terrain characteristics of the cluster

Estimate Distribution Plant
Since the size of a cluster is known, along with the number and types of customer locations, distribution plant can be estimated to connect these customers together.

The model uses a right-angle routed Minimum Spanning Tree ("MST"). Advantages of this method are that it can take account groups of customers within a cluster and is used by the FCC in the FCC Synthesis Model. Disadvantages are that it can overestimate required distribution cable because the MST is not the minimum distance necessary, right-angled routing likely over estimates paths necessary to connect customers, the method of surrogating customers likely spreads these customers out further than they are in reality.

Estimate Feeder Plant
Once the model knows cluster location and size, the model can build feeder plant connecting the central office switch to each cluster.

Interoffice Plant
Interoffice plant connects the central office switches together based on the amount and type of traffic at each switch.

The Role of Inputs

The HAI Model utilizes over 1400 inputs. The definition of these inputs along with the support for using these inputs is contained in the HAI Inputs Portfolio.

Many of the inputs in the model vary by equipment sizes or the density of a cluster. Since the model is designed to clusters that are unique to Arizona the application of the inputs in the model produce results that are unique and specific to Arizona.

In addition, an Arizona specific tax rates, cost of capital and depreciation impact all of the results in the model.

Dr. Fitzsimmons' Input Changes

Dr. Fitzsimmons, a Qwest witness, changed a number of inputs in the HAI Model. Many of the input changes made by Dr. Fitzsimmons are nothing more than a substitution of the Qwest's model input values into HAI. Most of these inputs have been repeatedly rejected by both State Commissions and the FCC.

Some of the changes made by Dr. Fitzsimmons are discussed below.

Line Counts

The HAI Model uses wire center specific, publicly available line counts. These line counts were obtained from Qwest's web site and Qwest filings with the FCC. Qwest proposes replacing publicly available line counts with proprietary values that have the impact of lowering line counts and thus increases costs. This is inappropriate.

The best publicly available line count data should be used in estimating costs.

Structure Sharing

Qwest proposed values for structure sharing are well below what has been ordered previously by this Commission and above the values proposed by the FCC. The values proposed by Qwest should be rejected and the HAI defaults should be used.

Drop Length

Dr. Fitzsimmons relied upon a drop study performed by Qwest on embedded drop lengths to justify doubling the drop lengths in the HAI Model. Based on my review of the data this study can not be relied upon. It is my understanding that all apartment buildings and other multi-tenant buildings were removed from the sample. Lot type 1 observations totaled 5853. This represents a lot of approximately a 100 by 100 square feet, according to the Qwest survey

form. For this size, lot a drop of 71 feet would reach the center of the lot. A 142 foot drop would reach across the diagonal of the lot. However in Qwest's data for lot type 1, there were 2811 observations (48%) with drop lengths between 71 and 142 feet. There were 1321 observations (23%) with lengths between 143 and 399 feet. A drop length of 400 feet would wrap around the property. There were 112 observations (2%) with lengths greater than 400 feet. This apparent inconsistency between the data should call into question the engineers' ability to measure distances. The data suggests that the engineers performing this study had a difficult time measuring the drop lengths, the property size, or both.

Plant Mix

Caution should be taken when comparing ARMIS "sheath" miles with a cost model's "structure" miles. Sheath miles measure the miles of cable, while structure miles measure the miles of structure. If a one-mile structure route has two cables on it, this would count as two sheath miles. ARMIS report 43-08 reports sheath miles, thus caution should be taken when using this data to compare with data in the cost models.

The table below attempt to make this comparison with Copper distances from ARMIS and copper distribution distances from HAI.

Plant Mix Comparison			
	ARMIS 2000 (copper)	HAI Distribution	Fitzsimmons Distribution
Aerial	36.5%	28.9%	17.7%
Underground	3.9%	0.8%	10.1%
Buried	59.6%	70.4%	72.2%

Note: The aerial value includes aerial wire, aerial cable, and intrabuilding riser cable. For underground cable the amount of trench miles are reported. An allocation of this value is used to estimate underground structure percents. Buried contains the buried cable value.

The HAI inputs assume that most of the copper underground plant will be in feeder cable.

Though it is not the intent of the HAI Model to replicate Qwest's existing network, the table above demonstrates that the HAI Model does not over estimate aerial plant as Dr. Fitzsimmons implies.

Buried Placement Cost

The table below compares the buried placement cost per foot assumed by the HAI Model, the FCC Synthesis Model and Dr. Fitzsimmons. As can be seen,

the values assumed by Dr. Fitzsimmons are approximately 50% higher than the values assumed by either the HAI Model defaults or the FCC Synthesis Model defaults. The values proposed by Dr. Fitzsimmons should be rejected.

Buried Placement Input Comparison			
DZ	HAI	FCC	Fitzsimmons
0 – 5	$1.77	$ 0.77	Confidential
5 – 100	$1.77	$ 1.54	Confidential
100 – 200	$1.77	$ 3.24	Confidential
200 – 650	$1.93	$ 4.26	Confidential
650 – 850	$2.17	$ 5.20	Confidential
850 – 2550	$3.54	$ 5.51	Confidential
2550 – 5000	$4.27	$ 7.34	Confidential
5000 – 10000	$13.00	$ 9.02	Confidential
10000+	$45.00	$11.93	Confidential
Average	$2.45	$2.75	Confidential

Network Operations

Network Operations expense in the HAI Model is based on a fraction of Qwest's embedded values. The fraction of embedded values is meant to account for the fact that Network Operations on a forward-looking network is likely to be less than on an embedded network. The fraction of embedded values also is meant to account for the fact that some network operations expenses are likely associated with retail offerings and thus should not be included in a wholesale cost model. Appendix D of the HAI Inputs Portfolio describes the Network Operations reduction factor in more detail.

The table below shows the Network Operations factor assumed by the HAI Model, the Arizona Commission in the previous cost case, and Dr. Fitzsimmons in the HAI Model. These values are also calculated into their resulting dollar per line, per month values. Included in this comparison is the value assumed by the FCC in the FCC Synthesis Model (10th Report and Order, footnote 1218).

	HAI	AZ Commission	FCC	Fitzsimmons
Network Operations Factor	50%	85%		100%
Resulting $ per line, per month	$1.39	$2.36	$1.48	$2.78

Corporate Overhead

In my direct testimony I included a table comparing Qwest's historical corporate overhead, with adjustments recommended by Tom Weiss, to the value

assumed in the HAI Model. Qwest pointed out that I should have subtracted corporate overhead expense from operating revenues before calculating the corporate overhead factor. This criticism is legitimate and the table has been recalculated below.

Year	Corporate Overhead (1,000s)	Operating Revenues less Corporate Overhead (1,000s)	Corporate Overhead Factor
1996	$134,931	$1,264,439	10.7%
1997	$166,584	$1,330,325	12.5%
1998	$195,105	$1,410,256	13.8%
1999	$169,994	$1,577,483	10.8%
2000	$173,345	$1,657,507	10.5%
Average			**11.6%**
HAI Default			**10.4%**

The table still demonstrates that in the past two years Qwest's corporate overhead factor is similar to the default used in the HAI Model. In addition the average over the past five years is 1.4% lower than the value assumed by Dr. Fitzsimmons in the HAI Model.

In addition work done for filings at the FCC comparing corporate operations expenses across the Bell Holding Companies shows that Qwest consistently has the highest corporate operations percents. In addition the 10.4% assumed in the model is well higher than the 8.3% RBOC average and is thus a conservatively high estimate. Dr. Fitzsimmons proposed change should be rejected.

	1996	1997	1998	1999	2000
Bell South	11.7%	9.9%	7.0%	6.3%	6.0%
Qwest	13.3%	14.2%	14.8%	12.3%	15.1%
SWBT	10.9%	12.1%	9.5%	8.2%	6.8%
Verizon	13.1%	12.5%	12.4%	10.1%	9.1%
Total RBOC	12.0%	12.1%	10.5%	8.9%	8.3%

Fill Factors

Fill factors in the HAI Model are used to size equipment and cables in order to ensure a minimum percent of spare capacity. Fill factors can vary by equipment and cable. Besides fill factors the model sometimes assumes a fixed amount of spare capacity. An example of this is conduit. Examples of places where the HAI Model uses unique fill factors are distribution cable, remote terminals, feeder cable and switch ports. Because equipment and cable comes in

discrete sizes the resulting actual spare capacity is usually higher than the fill factor assumed by the model.

The fill factor of 94% discussed by Mr. Flemming regarded the switch port administrative fill. The 75% fill factor discussed in my direct testimony referred to distribution cable. Both values are used in the model.

Dr. Fitzsimmons did not change the default fill factors used by the HAI Model in his run of the HAI Model. The biggest difference in cable fill factors between AT&T and Qwest is regarding the amount of excess capacity to design in the distribution network. Qwest builds its distribution network to "ultimate" demand utilizing 2 pair or 3 pair per location depending on the density group. The HAI Model utilizes a minimum 75% spare capacity in all distribution cables. This results in an average actual fill of 48.8%.

The table below compares the distribution and feeder copper fill factors assumed by the HAI Model and the FCC Synthesis Model.

	HAI Model		FCC Synthesis Model	
DZ	Distribution	Feeder	Distribution	Feeder
0 – 5	75%	80%	50.0%	70.0%
5 – 100	75%	80%	55.0%	77.5%
100 – 200	75%	80%	55.0%	80.0%
200 – 650	75%	80%	60.0%	82.5%
650 – 850	75%	80%	70.0%	82.5%
850 – 2550	75%	80%	75.0%	82.5%
2550 – 5000	75%	80%	75.0%	82.5%
5000 – 10000	75%	80%	75.0%	82.5%
10000+	75%	80%	75.0%	82.5%

Deaveraging

UNE prices that most closely reflect their underlying cost will best facilitate efficient competition by sending the appropriate signals to the marketplace and allow competitors to make economically efficient decisions on where and how to compete.

UNE prices that are set below cost could create uneconomic incentives for competitors to purchase UNEs rather than deploy their own network, even where the competitor is the low-cost producer. UNE prices that are set above cost could create uneconomic incentives for competitors to build facilities, even if the competitor is not the most efficient provider. In addition, since significant sunk costs exist for a competitor attempting to provide service over its own facilities, UNE prices that are set above costs can also severely limit entry into a market.

Thus, the first and most important step in the deaveraging process is to properly estimate unbundled network element prices in geographically distinct areas within the state. I believe the HAI Model run I've sponsored with my testimony best estimates these geographically distinct UNE prices. There are two other HAI Model runs on the record, those produced by Mr. Dunkel and Dr. Fitzsimmons. The results produced by Mr. Dunkel are much more reasonable and incorporate a more reasonable set of inputs than those produced by Dr. Fitzsimmons. Ms. Million proposed deaveraged rates using Qwest's ICM. These results appear vastly overstated, compared to the results produced using HAI by any of the parties.

The next step in the deaveraging process is to determine the number zones. Since all cost models produce cost estimates by wire center, a unique zone could be assigned to each wire center. However, since tracking and verifying a large number of zones may be burdensome and costly to both CLECs and ILECs it is customary for wire centers with similar costs to be grouped together into a set number of zones. In this case all parties have proposed three zones. States in Qwest region have established three to five deaveraged zones.

The final step is to group wire centers with similar costs into zones. Since parties have incentives to place wire centers in particular zones in order to benefit their own business plans I've created a deaveraging program that mathematically searches for the wire center assignments to zones that minimizes the overall cost deviations between wire center prices and a zones average price. Since the goal of deaveraging is to allow UNE prices to more closely represent their underlying cost the method I've created best achieves this goal. Both Mr. Dunkel and myself have used this method to assign wire centers into zones. The differences in our zone assignments and zone prices are a result of the underlying cost values we are relying upon, not upon the methodology used to create zones.

Qwest's initial deaveraging proposal assigned wire centers to zones using arbitrary, Qwest defined, breaks between zones. Qwest's updated proposal is a mixture of arbitrary assignment and the deaveraging program. Qwest arbitrarily assigns the two lowest cost wire centers to zone one and then uses the deaveraging optimization program to determine the break point between zones two and three. If Qwest wishes to have fewer wire centers in a particular zone then Qwest should propose deaveraging to more than three zones. Zone one using the deaveraging program could be further subdivided in order to create a four or five zone proposal. Qwest has given no rationale for merely assigning the first two wire centers into zone one and thus their proposal should be rejected.

CERTIFICATE OF SERVICE
ACC Docket No. T-00000A-00-0194

I hereby certify that on the 24th of July 2001, the original and ten copies of the **Non-Proprietary Version** of *Summary Testimony of Douglas Denney,* on behalf of AT&T Communications of the Mountain States, Inc., WorldCom, Inc., and XO Arizona, Inc., in the above-referenced matter, was sent for filing via FedEx, next business morning delivery, to:

Docket Control
Arizona Corporation Commission
1200 West Washington
Phoenix, AZ 85007

And the original and three (3) copies of the **Proprietary Version** of the foregoing and three (3) copies of the **Non-Proprietary Version** in accordance with the Procedural Order in this matter, was sent via FedEx, next business morning delivery, :

Lyn Farmer
Dwight Nodes
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Arizona Corporation Commission
1200 West Washington Street
Phoenix, AZ 85007

And a true and correct copy of the **Proprietary** and **Non-Proprietary Versions** of the foregoing was sent via FedEx, to:

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And a true and correct copy of the **Non-Proprietary Version** was sent via U.S. Mail, postage pre-paid, to:

** indicates, also received the **Proprietary Version** of the Summary of Douglas Denney

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Dated this ___July 24, 2001___   by _____